

AN UNUSUALLY SMALL EGG-CARRYING *CALLINECTES SAPIDUS* IN THE NORTHERN GULF OF MEXICO, WITH COMMENTS ON THE BARNACLE *LOXOTHYLACUS TEXANUS*

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ABSTRACT This communication reports the smallest verified egg-carrying specimen of *Callinectes sapidus*. With a carapace 20 mm long by 47 mm wide, the female measures considerably less than most other mature individuals, but about the same as an average-sized individual infected with an adult specimen of the rhizocephalan *Loxothylacus texanus*.

We report what we believe to be the smallest known egg-bearing specimen of *Callinectes sapidus* Rathbun. The crab's identification is based primarily on the two broad triangular frontal teeth on the carapace, orange-red coloration at the articulations, and orange fringes on chelae tipped with purple (Williams 1974; verified by Williams, personal communication). Using the specified dimensions described by Williams (1974), the specimen measured 20.0 mm long by 36.0 mm wide at the bases of lateral spines and 46.7 mm wide including the lateral spines (Figure 1). The crab, deposited in the Gulf Coast Research Laboratory Museum (GCRL 1121), came from 0.9 meters of 17-ppt water (29°C) on 14 June 1983, immediately south of Raccoon Point on the westernmost island of the Isle Dernières chain delimiting Caillou Bay, Louisiana. Its egg mass appeared brown because the orange-colored embryos had already developed large darkly pigmented eyes.

Initially, the berried crab occurred with three individuals parasitized by the rhizocephalan cirriped *Loxothylacus texanus* Boschma and was mistakenly considered to be infected. In fact, most small portunids with a semisubcircular-shaped abdomen shown to us by fishermen who thought they had mature females were infected by the rhizocephalan. The mature parasite has a protruding externa similar in appearance to a crab's egg mass. Mature uninfected female specimens of *C. sapidus* slightly larger than the one we report are known. Williams (1974) examined one 21 mm long by 55 mm wide, including lateral spines, and Fischler (1959) reported three 22 to 24 mm long by 52 to 55 mm wide from North Carolina where the parasite apparently did not exist.

Causes for dwarfing in *C. sapidus* are poorly understood. We know that the rhizocephalan *L. texanus*, which ranges from at least Panama (Boschma 1950) to Biscayne Bay, Florida (Overstreet 1983), stunts growth and feminizes



Figure 1. Egg-bearing *Callinectes sapidus* (GCRL 1121) next to a 17.9-mm-diameter U. S. ten cent coin.

males (e.g., Overstreet 1983). About one half of the rhizocephalan-infected crabs that we examined ranged between 40 and 55 mm wide (Figure 2), and the average width for infected ones in Louisiana collections was 58 mm (Adkins 1972). These parasitized crabs were smaller than mature females from the same locality (Figure 3). Other disease agents as well as genetic and environmental influences may also cause individuals to be abnormally small. For example, Tagatz (1968) reported that a much larger percentage of

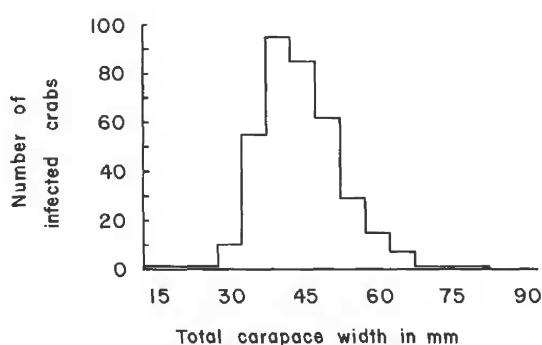


Figure 2. Carapace-widths (including lateral spines) of 364 individuals of *Callinectes sapidus* from Mississippi from October 1973 to September 1982 that had one or more externae of *Loxothylacus texanus* or a modified abdomen suggesting the rhizocephalan infection.

females matured at a small size in water ranging from 3- to 33-ppt salinity near the mouth of the St. Johns River in Florida compared with those in water usually less than 1 ppt in the same river south of Jacksonville.

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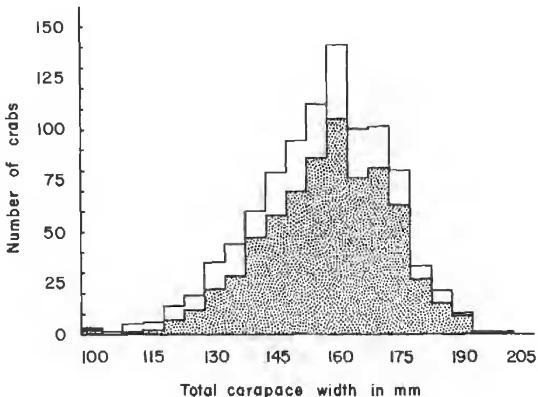


Figure 3. Carapace-widths (including lateral spines) of 960 mature females of *Callinectes sapidus* from Mississippi measured from October 1973 to September 1982 (white bars), overlayed by those females either carrying eggs or spawned at least once (dotted bars).

crab collected during the 1983 SEAMAP Project and Austin B. Williams, of the Systematics Laboratory, National Marine Fisheries Service, who verified the crab's identity and reviewed the manuscript. The work was conducted in cooperation with the U. S. Department of Commerce, NOAA, NMFS, under PL-88-309, Project No. 2-393-R.

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